



BILLING CODE: 4510-26-P

DEPARTMENT OF LABOR

Occupational Safety and Health Administration

[Docket No. OSHA-2020-0001]

STP Nuclear Operating Company; Grant of Permanent Variance

AGENCY: Occupational Safety and Health Administration (OSHA), Labor.

ACTION: Notice.

SUMMARY: In this notice, OSHA grants a permanent variance to South Texas Project Nuclear Operating Company (STP Nuclear) from the OSHA standard that requires the isolation of permit-required confined spaces.

DATES: The permanent variance specified by this notice becomes effective on [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] and shall remain in effect until it is modified or revoked, whichever occurs first.

FOR FURTHER INFORMATION CONTACT: Information regarding this notice is available from the following sources:

Press inquiries: Contact Mr. Frank Meilinger, Director, OSHA Office of Communications, U.S. Department of Labor, telephone: (202) 693-1999; email: meilinger.francis2@dol.gov.

General and technical information: Contact Mr. Kevin Robinson, Director, Office of Technical Programs and Coordination Activities, Directorate of Technical Support and Emergency Management, Occupational Safety and Health Administration, U.S. Department of Labor, phone: (202) 693-2110 or email: robinson.kevin@dol.gov.

SUPPLEMENTARY INFORMATION:

Copies of this Federal Register notice: Electronic copies of this *Federal Register* notice are available at <http://www.regulations.gov>. This *Federal Register* notice and other relevant information are also available at OSHA's webpage at <http://www.osha.gov>.

I. Notice of Application

On February 18, 2019, South Texas Project Nuclear Operating Company (STP Nuclear or the applicant), 12090 FM 521, Wadsworth, Texas 77483, submitted under Section 6(d) of the Occupational Safety and Health Act of 1970 (OSH Act; 29 U.S.C. 655) and 29 CFR 1905.11 ("Variances and other relief under section 6(d)") an application for a permanent variance from the provision of the OSHA standard that regulates ensuring isolation of permit-required confined spaces, as well as a request for an interim order pending OSHA's decision on the application for variance (OSHA-2020-0001-0001) at its Wadsworth, Texas facility. Specifically, STP Nuclear seeks a variance from the provision of 29 CFR 1910.146 that requires "isolation of permit space," meaning the process by which a permit-required space is removed from service and completely protected against the release of energy and material into the space (29 CFR 1910.146(b) and 29 CFR 1910.146(d)(3)(iii)). STP Nuclear's application also requested an interim order pending OSHA's decision on the application for a variance.

According to the application, STP Nuclear operates two pressurized water reactor nuclear power plants at its Wadsworth, Texas location. STP Nuclear's description of its operation indicates that these nuclear power plants use steam to drive turbine generators, which is cooled by circulating water through a condenser to convert the steam back into water. STP Nuclear uses a circulating water system (CWS) that cools the steam by pumping water from the main cooling reservoir (MCR), through the condenser and back to the reservoir. The MCR is 7,000 acres and includes an intake structure where pumps that provide cooling to the units are located. These pumps include the circulating water (CW) pumps, of which there are a total of eight (four per unit). The flow from each CW

pump discharges through a motor operated valve into a 96 foot diameter pipe which passes over the reservoir embankment at 59 feet elevation. The four pump discharge pipes combine into two 138 inch underground pipes that feed a manifold in the Turbine Generator Building (TGB). The circulating water flows through condenser tubes inside what STP Nuclear refers to as the “water box.” The manifold supplies water to each of the six main condenser water boxes with an 84 inch motor-operated valve at the inlet and outlet of each water box. The water exiting the water boxes enters a discharge manifold which then splits into two underground 138 inch pipes returning the water to the MCR passing over the reservoir embankment at 58 feet elevation. The applicant asserts that the design of the CWS is such that it cannot be completely removed from service for water box cleaning or tube repair, and that maintenance activities occur when one of the two Power Plants are removed from service for refueling, which happens once every eighteen months.

The condenser water box is a permit-required confined space that under STP Nuclear’s procedures and OSHA’s standard at 29 CFR 1910.146 require a confined-space permit and security alerts prior to entry. Employees can enter the water boxes to clean condenser tubes and to repair or plug leaking tubes only after being cleared by the STP Nuclear Entry Supervisor in accordance with STP Nuclear’s confined space procedure. STP Nuclear performs maintenance on condenser water boxes prior to the summer months to ensure maximum efficiency, and therefore, maximum generation during the peak electric generating period in Texas. This maintenance activity (tube cleaning) minimizes fouling and blocking of the condenser tubes. Employees entering the water box to perform maintenance and repair activities could be exposed to the hazard of engulfment by water that could flow into the water box if condenser isolation valves were to rotate or otherwise fail during the maintenance or repair activity.

STP Nuclear asserts that without frequent maintenance, the condenser tubes could leak and introduce contaminants, such as sodium, into plant systems that can erode barriers that prevent release of radioactive materials. Further, STP Nuclear asserts that if the water box cannot be timely isolated to repair tubes, it may have to shut down the nuclear power plant, which will cause interruption to the power supply. STP Nuclear previously believed that procedures already in place – lockout/tagout of the isolation valve, continuous monitoring for leakage past the valve and standby attendant – were adequate to protect employees.

On March 22, 2018, OSHA received a complaint alleging that STP Nuclear failed to ensure isolation of the condenser water box as required by OSHA's permit-required confined space standard. In response to this complaint, STP Nuclear submitted a letter, dated March 28, 2018, to OSHA's Corpus Christi, Texas Area Office (OSHA-2020-0001-0002), asserting its belief that they are in full compliance with 29 CFR 1910.146 and describing their current practices to comply with the standard. On April 20, 2018, the Corpus Christi, Texas OSHA Area Office provided a response to STP Nuclear's explanation stating that it was feasible to install two 5,000 pound blank flanges to isolate the system and directed STP Nuclear to take corrective action (OSHA-2020-0001-0003).

In STP Nuclear's February 18, 2019, variance application, the applicant asserts that isolating the water box using blank flanges creates a greater hazard and significant risk for injury. Further, the applicant believes that installing blank flanges has the potential to compromise the structural integrity of the system. To ensure isolation of the condenser water box prior to maintenance activities, STP Nuclear proposes in its variance application an alternative safety measure – drilling four holes into the 99.75 inch diameter upper valve flange, and fabrication of 20 three-fourth inch diameter mechanical stops (stop pins), which will be installed to block movement of the butterfly valve disc to ensure isolation of the water boxes during maintenance work.

OSHA initiated a technical review of STP Nuclear's variance application and developed a set of follow-up questions on June 9, 2019 (OSHA-2020-0001-0003), regarding the assertions of equivalent worker protection included in the application. On June 27, 2019, STP Nuclear provided written answers to the follow-up questions, (OSHA-2020-0001-0004) as well as supplemental materials to support the variance application including: a Hazard and Operability Study report and recommendations (hazard analysis using a "HAZOP" methodology); a copy of all detailed procedures used when employees are entering or inside the water box; and a copy of emergency procedures and equipment used while employees are working inside the water box.

In reviewing the application, OSHA evaluated the use of two blank flanges, a 99.5 inch diameter, 2.5 inch thick steel blank weighing 5,563 pounds each to isolate the condenser water boxes during maintenance activities. The applicant asserted in the variance application that installing a blank flange to isolate a condenser water box creates a greater hazard and significant risk for injury to both personnel and the physical building. STP Nuclear asserts that installing a blank flange requires removal of the water box inlet and outlet expansion joints and installation of two steel blanks. Installing the blank flanges as described above entails a high degree of risk, as it would require moving these heavy objects from the building entrance to the water box, using rigged chain falls to trapeze the blanks to the water box, as well as construction of a support structure for the water box, in order to support the additional weight of the 5,563 pound blanks and ensure the water box and/or inlet pipe does not misalign from removal of the expansion joint. Further, OSHA carefully reviewed the administrative and engineering controls outlined in the variance application and supplemental materials as part of the proposed alternative work practices identified in the variance application.

OSHA reviewed STP Nuclear's application for the variance and interim order and determined that they were appropriately submitted in compliance with the applicable

variance procedures in Section 6(d) of the Occupational Safety and Health Act of 1970 (OSH Act, 29 U.S.C. 655(d)) and OSHA's regulations at 29 CFR 1905.11 ("Variances and other relief under section 6(d)"), including the requirement that the applicant inform workers and their representatives of their rights to petition the Assistant Secretary of Labor for Occupational Safety and Health for a hearing on the variance application.

Following this review and discussions with STP Nuclear, OSHA determined that STP Nuclear's proposed alternative, subject to the conditions in the request and imposed by the Interim Order, provides a workplace as safe and healthful as that required by the permit-required confined space standard. On September 1, 2020, OSHA published a *Federal Register* notice announcing STP Nuclear's application for a permanent variance, stating the preliminary determination along with the basis of that determination, and granting the Interim Order (86 FR 54424). OSHA requested comments on each.

OSHA did not receive any comments or other information disputing the preliminary determination that the alternative was at least as safe as OSHA's standard, nor any objections to OSHA granting a permanent variance. Accordingly, through this notice OSHA grants a permanent variance subject to the conditions set out in this document.

II. The Variance Application

A. Background

STP Nuclear's variance application and the responses to OSHA's follow-up questions provided the following: detailed descriptions of the condenser water box maintenance process; the proposed work alternative to isolate the condenser water box using stop pins while performing maintenance activities; and procedures developed to manage the permit-required confined space. Additionally, STP Nuclear provided a HAZOP study as technical evidence supporting STP Nuclear's assertion of equivalency of worker protection.

As an alternative to installation of blank flanges, STP Nuclear proposes a comprehensive engineered system and appropriate administrative controls to satisfy the isolation requirement. The engineered system uses mechanical stops (stop pins) to block the movement of the butterfly valve disk in combination with administrative procedures to isolate the condenser water box in order to perform maintenance activities. The stop pins function as the isolation device, in that utilizing the stop pins prevents the engagement of the condenser water box, thus interrupting the flow of water to the condenser water boxes to allow maintenance activities. STP Nuclear asserts that using stop pins to isolate butterfly valve disks in condenser water boxes match the requirements of 29 CFR 1910.146(d)(3)(iii).

Further, STP Nuclear asserts that its mechanical stop system has been evaluated via a HAZOP study, which is a process that seeks to identify potential operating hazards and risks in systems/processes. The HAZOP study included a Failure Modes and Effects Analysis (FMEA) that was developed and documented. The FMEA is an assessment of the 84 inch butterfly valves in the closed position, with stop pins installed, to physically isolate the condenser water box while the remainder of the CWS remains in operation. The HAZOP study seeks to identify the potential hazardous scenarios, as they relate to personnel entry into the isolated water box, to determine potential areas of concern, especially regarding a possible engulfment hazard. Issued June 20, 2019 (OSHA-2020-0001-0004), the HAZOP study included eight recommendations for additional engineering and administrative controls, all of which have been adopted by STP Nuclear. These recommendations are described in Proposed Condition D of this notice.

STP Nuclear contends that the administrative and engineering controls comprising the alternative safety measures included in the variance application provide the workers with a place of employment that is at least as safe and healthful as they would obtain under the provisions of OSHA's permit-required confined space standard.

B. Variance from 29 CFR 1910.146(b) and 29 CFR 1910.146(d)(3)(iii)

As an alternative means of compliance with the isolation requirements of §§ 1910.146(b) and 1910.146(d)(3)(iii), STP Nuclear is proposing to use a comprehensive system of engineering and administrative control procedures. The engineering controls include (1) a modification of the condenser isolation valves to drill four holes into the 99.75 inch diameter upper valve flange, to allow the installation of mechanical stops (“stop pins”) which block rotation of the isolation valve disks, (2) utilizing a physical lock on the 6 inch cross-tie valves, and (3) utilization of automated drains that provide a secondary means of evacuating water leakage from the isolated water box connected piping. STP Nuclear has also established administrative controls to support the use of the stop pin system, including: (1) continuous monitoring for leakage past the isolation valve, (2) utilizing a dedicated water box drain pump operator while personnel are inside the isolated water box, (3) utilizing a standby attendant to aid in the evacuation of an employee working in the condenser water box in the event of an emergency, and (4) a dedicated emergency evacuation procedure.

Further, the applicant asserts that: (1) full isolation of the water boxes would create a greater hazard to its employees, and (2) the continuous water system makes shutdown of the water supply impossible. Shutting down the circulating water system could potentially cause the nuclear power plant to leak radiation, which is a significant public health hazard.

C. Technical Review

OSHA conducted a review of STP Nuclear’s application and the supporting technical documentation. After completing the review of the application and supporting documentation, OSHA concludes that STP Nuclear:

1. Has a permit-required confined space entry program;

2. Performed a hazard analysis using the Hazard and Operability Study (“HAZOP”) methodology to assess the risks of entering condenser water boxes to perform maintenance on condenser tubes;
3. Implemented controls recommended in the HAZOP study (outlined in Proposed Condition D of this notice);
4. Established procedures for condenser water box online isolation and restoration;
5. Has developed the Condenser Water Box Online Isolation and Restoration procedure to remove condenser water boxes from service for maintenance;
6. Has modified or will modify the isolation valve seats in condenser water boxes by installing specified mechanical stops (“stop pins”). These stop pins are inserted downstream of the inlet disc and upstream of the outlet disc following condenser water box isolation and drain down;
7. Implemented detailed administrative procedures designed to provide additional safety measures for all employees working on or near condenser water boxes, which include having a watch stander present at all times, as well as emergency evacuation procedures in the event that water begins flowing into isolated condenser water boxes;
8. Procured and provided appropriate equipment and supplies;
9. Made the alternative isolation control policies and procedures available to employees;
10. Trained authorized and affected employees on the application of the alternative work practice and associated isolation control policies and procedures;
11. Developed additional administrative controls and procedures to minimize the potential for authorized and affected employees to work around isolated condenser water boxes;

12. Conducted a comparison of the blank flange versus use of stop pins, which mechanically limits disc travel providing additional personnel safety against engulfment;
13. Has effective emergency rescue procedures to quickly and effectively evacuate workers within the condenser water box, including a rescue team present on site during maintenance activities; and
14. Conducted a Failure Modes and Effects Analysis, which was an assessment of the 84 inch butterfly valves in the closed position.

III. Description of the Conditions Specified by the Permanent Variance

As previously indicated in this notice, OSHA conducted a review of STP Nuclear's application and supporting documentation. OSHA determined that STP Nuclear developed and proposed to implement effective alternative means of protection that provides protection to their employees "as safe and healthful" as protections required within paragraph 29 CFR 1910.146(d)(3)(iii) of OSHA's permit-required confined space isolation standard during the process of performing maintenance on condenser water boxes. Therefore, on September 1, 2020, OSHA published a *Federal Register* notice announcing STP Nuclear's application for a permanent variance and interim order, grant of an interim order, and request for comments (86 FR 54424). The agency requested comments by October 1, 2020, and OSHA received no comments in response to this notice.

During the period starting with the September 1, 2020, publication of the preliminary *Federal Register* notice announcing grant of the Interim Order until the agency modifies or revokes the Interim Order or makes a decision on the application for a permanent variance, the applicant was required to comply fully with the conditions of the Interim Order as an alternative to complying with the requirements of paragraph 29 CFR

1910.146(d)(3)(iii). As of the effective date of this notice, OSHA is revoking the Interim Order granted to the employer on September 1, 2020.

This section describes the conditions that comprise the alternative means of compliance with 29 CFR 1910.146(b) and 29 CFR 1910.146(d)(3)(iii). These conditions form the basis of the permanent variance that OSHA is granting to STP Nuclear.

Condition A: Scope

The scope of the permanent variance limits coverage to the working conditions specified under this condition. Clearly defining the scope of the permanent variance provides STP Nuclear, their employees, potential future applicants, other stakeholders, the public, and OSHA with necessary information regarding the work situations which the permanent variance will cover. To the extent that STP Nuclear conducts work outside the scope of this variance, it will be required to comply with OSHA standards, including the isolation of permit-required confined spaces.

Pursuant to 29 CFR 1905.11, an employer (or class or group of employers) may request a permanent variance for a specific workplace or workplaces. When OSHA approves a permanent variance, it applies only to the specific employer(s) that submitted the application and only to the specific workplace or workplaces designated as part of the project. In this instance, OSHA's grant of a permanent variance applies only to the applicant, STP Nuclear, and only at the Wadsworth, Texas nuclear plant. The permanent variance does not apply to any other employers or STP Nuclear locations outside of the Wadsworth, Texas facility.

Condition B: List of Abbreviations

The following abbreviations apply to this permanent variance:

1. CFR – Code of Federal Regulations
2. CWS – Circulating Water System
3. ECO – Equipment Clearance Order

4. FMEA – Failure Modes and Effects Analysis
5. HAZOP – Hazard and Operability Study
6. MCR – Main Cooling Reservoir
7. OSHA – Occupational Safety and Health Administration
8. OTPCA – Office of Technical Programs and Coordination Activities
9. RRP – Rope Rescue Program
10. TGB – Turbine Generator Building

Condition C: List of Definitions

The permanent variance includes definitions for a series of terms. Defining these terms serves to enhance the applicant's and the employees' understanding of the conditions specified by the permanent variance.

1. *Affected employee or worker* – an employee or worker who is affected by the conditions of this permanent variance, or any one of his or her authorized representatives. The term “employee” has the meaning defined and used under the Occupational Safety and Health Act of 1970 (29 U.S.C. 651 et seq.).
2. *Competent person* – an individual who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
3. *Engulfment* – the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.
4. *Hazard and Operability Study* – an evaluation of tasks or operations to identify potential hazards and to determine the necessary controls.

5. *Isolation* – the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.
6. *Permit-required confined space* – a confined space that has one or more of the following characteristics:
 - (1) Contains or has a potential to contain a hazardous atmosphere;
 - (2) Contains a material that has the potential for engulfing an entrant;
 - (3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
 - (4) Contains any other recognized serious safety or health hazard.
7. *Qualified person* – an individual who, by possession of a recognized degree, certificate, or professional standing, or who, by extensive knowledge, training, and experience, successfully demonstrates an ability to solve or resolve problems relating to maintenance of condenser water boxes.

Condition D: Safety Practices and Procedures

This condition requires that STP Nuclear (1) adhere to the Condenser Water Box Online Isolation and Restoration Procedure provided to OSHA with the Variance application and (2) implement the hazard prevention and control requirements provided with the Variance application to ensure the continued effective functioning of the alternate work practice (use of stop pins) to isolate condenser water boxes before performing maintenance activities. Further, STP Nuclear must implement the following additional administrative controls identified in the HAZOP study:

1. Close the cycle inlet and butterfly valves with a local handswitch.

2. Remove power from the inlet and isolation valve and hang Danger Tags on the local handswitch and the breaker.
3. Drain the condenser water box to another condenser water box using the permanent installed condenser drain down pumps.
4. Check for leakages past the isolation valve seat. In the event that a leak is found, STP Nuclear will use a handwheel to manually achieve proper disk seating and ensure that a Danger Tag is hung on the handwheel.
5. Establish and implement a procedure to ensure that no other maintenance will be performed on the condenser water box, unless permit-required confined space measures are used.
6. Modify each of the 12 condenser water box isolation valves to drill four holes into the 99.75 inch diameter upper valve range, which will be plugged when the condenser water box is in service and fabricate 20 three-fourth inch diameter stop pins, which will be installed to block movement of the butterfly valve disk and hang Danger Tags on the pins.
7. Confirm that lineup changes (i.e., pump switching, valve position changes) within the CWS are prohibited while personnel are within the water box.
8. Limit the number of personnel occupying the isolated water box to no more than 3 in the inlet or outlet and no more than 4 persons in total during condenser water box maintenance activities.
9. Utilize technology-based level measurement instruments with local audible alarms to alert the personnel working in the isolated water box of a rising water level in the CWS piping beneath the water box. This instrument serves as a secondary means of monitoring the water level, in addition to the manual level monitoring via Tygon tubing.

10. Utilize hydraulic calculations to analyze the potential leak paths into an isolated water box and quantify the inflow rates and durations to fill the water box. This will identify how much time personnel have to evacuate the water box in the event of a water leak into the isolated water box.
11. Utilize a physical lock on the 6 inch cross-tie valve (or replace the valve with a design that allows physical locking) to prevent any unauthorized operation of the valve during the condenser water box maintenance activity.
12. Monitor the water levels in the supply side water box (and return water box) regardless of when personnel are present. Continuous monitoring for water leakage on the supply and return water boxes of an isolated segment of the system as water leakage from either side could present a hazard to personnel even if they are not in the water box where the leakage is occurring.
13. Require the presence of a dedicated water box drain pump operator while personnel are occupying the isolated water box.
14. Utilize the water box low-point drains (6 inches for Unit 1 and 8 inches for Unit 2) to provide secondary means of evacuating water leakage from the isolated water box connected CWS piping.
15. Install a level indicator that will alarm to alert the employee in the water box to evacuate because of rising water levels and auto start the two drain pumps. This level indicator alarm is in addition to the portable system being used in monitoring the levels.
16. In addition to the watch stander attendant required under 29 CFR 1910.146, the rescue team members must be present at the water box throughout duration of the maintenance activities.

Condition E: Communication

This condition requires the applicant to implement an effective system of information sharing and communication to provide workers performing maintenance activities within condenser water boxes of any hazards that may affect their safety. Effective information sharing and communication are intended to ensure that affected workers receive updated information regarding any safety-related hazards and incidents, and corrective actions taken, prior to the start of each shift. This condition also requires the applicant to ensure reliable means of emergency communications are available and maintained for affected workers and support personnel during maintenance activities within the condenser water box. Availability of such reliable means of communications enables affected workers and support personnel to respond quickly and effectively to hazardous conditions or emergencies that may develop during water box maintenance operations.

Condition F: Worker Qualification and Training

This condition requires STP Nuclear to implement an effective permit-required isolation qualification and training program for authorized employees who perform maintenance activities within condenser water boxes. Additionally, Condition F requires the applicant to train each affected employee on the purpose and use of the permit-required confined space procedures.

The condition specifies the factors that an affected worker must know how to perform safely during maintenance operations within the condenser water box, including how to enter, work in, and exit from a condenser water box under both normal and emergency conditions. Having well-trained and qualified workers performing condenser water box maintenance activities is intended to ensure that they can recognize and respond appropriately to electrical safety and health hazards. These qualification and training requirements enable affected workers to handle emergencies effectively, thereby preventing worker injury, illness, and fatalities. Additionally, Condition F requires the applicant to train each affected employee in the purpose and use of the alternative permit-

required confined space isolation procedures identified in the permanent variance application.

Condition G: Inspections, Tests, and Accident Prevention

This condition requires the applicant to implement and operate an effective program for completing inspections, tests, program evaluations, and accident prevention for performing maintenance and cleaning activities within the condenser water box and associated work areas. This condition will help to ensure the safe operation and physical integrity of the condenser water boxes and the work areas necessary to safely conduct maintenance operations.

This condition also requires the applicant to conduct tests, inspections, corrective actions, and repairs involving the use of the alternative isolation process used to perform maintenance activities on condenser water boxes identified in the variance application. Further, this requirement provides the applicant with information needed to schedule tests and inspections to ensure the continued safe operation of the equipment and systems and to determine that the actions taken to correct defects are appropriate. These tests, inspections, corrective actions, and repairs shall be conducted in concert with the Condenser Water Box Online Isolate and Restoration Procedure submitted to OSHA by STP Nuclear with the Variance application.

Condition H: Additional Recordkeeping Requirement

Under OSHA's recordkeeping requirements in 29 CFR part 1904 Recording and Reporting Occupational Injuries and Illnesses, STP Nuclear must maintain a record of any recordable injury, illness, or fatality (as defined by 29 CFR part 1904) resulting from the task of cleaning and performing maintenance activities within the condenser water box by completing OSHA Form 301, Injury and Illness Incident Report and OSHA Form 300, Log of Work-Related Injuries and Illnesses. In addition, STP Nuclear must maintain

records of all maintenance activities performed at condenser water boxes at the STP Nuclear site, as well as associated hazardous condition corrective actions and repairs.

Condition I: Notifications

Under this condition, the applicant is required, within specified periods of time, to:

(1) notify OSHA of any recordable injury, illness, in-patient hospitalization, amputation, loss of an eye, or fatality that occurs as a result of cleaning or maintenance activities around the condenser water box; (2) provide OSHA a copy of the incident investigation report (using OSHA Form 301, Injury and Illness Incident Report) of these events within 24 hours of the incident; (3) include on OSHA Form 301, Injury and Illness Incident Report, information on the conditions associated with the recordable injury or illness, the root-cause determination, and preventive and corrective actions identified and implemented; (4) provide the certification that affected workers were informed of the incident and the results of the incident investigation; (5) notify OSHA's Office of Technical Programs and Coordination Activities (OTPCA) and the Corpus Christi, Texas Area Office at least 15 working days in advance, should the applicant need to revise the permit-required confined space isolation procedures related to condenser water box cleaning or maintenance affecting STP Nuclear's ability to comply with the conditions of this permanent variance; and (6) provide OTPCA and the Corpus Christi, Texas Area Office, by January 31 of each calendar year, with a report covering the previous calendar year, evaluating the effectiveness of the alternate permit-required confined space isolation procedures set forth in the conditions of the permanent variance.

Additionally, this condition requires the applicant to notify OSHA if it ceases to do business, has a new address or location for the main office, or transfers the operations covered by the permanent variance to a successor company. In addition, the condition specifies that the transfer of the permanent variance to a successor company must be approved by OSHA. These requirements allow OSHA to communicate effectively with

the applicant regarding the status of the permanent variance, and expedite the agency's administration and enforcement of the permanent variance. Stipulating that an applicant is required to have OSHA's approval to transfer a variance to a successor company provides assurance that the successor company has knowledge of, and will comply with, the conditions specified by this permanent variance, thereby ensuring the safety of workers involved in performing the operations covered by the permanent variance.

IV. Decision

As described earlier in this notice, after reviewing the proposed alternative, OSHA determined that STP Nuclear developed, and proposed to implement, effective alternative means of protection that protect its employees as effectively as paragraph 29 CFR 1910.146(d)(3)(iii) of OSHA's standard governing isolation of permit-controlled confined space during the task of maintenance of condenser water boxes. Further, under section 6(d) of the OSH Act (29 U.S.C. 655(d)), and based on the record discussed above, the agency finds that when the employer complies with the conditions of the variance, the working conditions of the employer's workers are at least as safe and healthful as if the employer complied with the working conditions specified by paragraph 29 CFR 1910.146(d)(3)(iii) of OSHA's standard for isolation of permit-controlled confined space. Therefore, under the terms of this variance, STP Nuclear must: (1) comply with the conditions listed below under section V of this notice ("Order") for the period between the effective date of this notice and until the agency modifies or revokes this final order in accordance with 29 CFR 1905.13; (2) comply fully with all other applicable provisions of 29 CFR part 1910; and (3) provide a copy of this *Federal Register* notice to all employees affected by the conditions using the same means it used to inform these employees of the application for a permanent variance.

V. Order

As of the effective date of this final order, OSHA is revoking the Interim Order granted to the employer on September 1, 2020 (86 FR 54424).

OSHA issues this final order authorizing South Texas Project Nuclear Operating Company (STP Nuclear or the applicant) to comply with the following conditions instead of complying with the requirements of paragraphs 29 CFR 1910.146(d)(3)(iii) of OSHA's isolation requirements of permit-controlled confined space. This final order applies to all STP Nuclear employees located at 12090 FM 521, Wadsworth, Texas 77483. The standard defines "isolation of permit space" in 29 CFR 1910.146(b) as: The process by which a permit-space is removed from service and isolated, and completely protected against the release of energy and material into the space by such means as: ... blocking or disconnecting all mechanical linkages. Further, 29 CFR 1910.146(d)(3)(iii) requires isolation of the permit-required confined space.

A. Scope

1. This permanent variance applies only to the task of performing maintenance activities within condenser water boxes at STP Nuclear's Wadsworth, Texas facility. This work is to be performed by authorized employees under the alternative isolation procedures submitted to OSHA as part of this application for a permanent variance.
2. No other servicing and/or maintenance work, including electrical maintenance, may be performed at the STP Nuclear facility using the conditions of this order. These activities are to be performed in full compliance with all applicable provisions of 29 CFR 1910.146.
3. No construction work (i.e., work for construction, alteration, and/or repair, including painting and decorating) may be performed within the condenser water boxes under the conditions of this order.

4. Except for the requirements specified by 29 CFR 1910.146(b) and 29 CFR 1910.146(d)(3)(iii), STP Nuclear must comply fully with all other applicable provisions of 29 CFR 1910.146 during maintenance activities of condenser water boxes.
5. The interim order granted to STP Nuclear on September 1, 2020 (86 FR 54424), is hereby revoked as of the effective date of this final order.

B. List of Abbreviations

The following abbreviations apply to this permanent variance:

1. CFR – Code of Federal Regulations
2. CWS – Circulating Water System
3. ECO – Equipment Clearance Box
4. FMEA – Failure Modes and Effects Analysis
5. HAZOP – Hazard and Operability Study
6. MCR – Main Cooling Reservoir
7. OSHA – Occupational Safety and Health Administration
8. OTPCA – Office of Technical Programs and Coordination Activities
9. RRP – Rope Rescue Program
10. TGB – Turbine Generator Building

C. Definitions

The following definitions apply to this permanent variance:

1. *Affected employee or worker* – an employee or worker who is affected by the conditions of this permanent variance, or any one of his or her authorized representatives. The term “employee” has the meaning defined and used under the Occupational Safety and Health Act of 1970 (29 U.S.C. 651 et seq.).
2. *Competent person* – an individual who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary,

hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

3. *Engulfment* – the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.
4. *Hazard and Operability Study* – an evaluation of tasks or operations to identify potential hazards and to determine the necessary controls.
5. *Isolation* – the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.
6. *Permit-required confined space* – a confined space that has one or more of the following characteristics:
 - (1) Contains or has a potential to contain a hazardous atmosphere;
 - (2) Contains a material that has the potential for engulfing an entrant;
 - (3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
 - (4) Contains any other recognized serious safety or health hazard.
7. *Qualified person* – an individual who, by possession of a recognized degree, certificate, or professional standing, or who, by extensive knowledge, training, and experience, successfully demonstrates an ability to solve or resolve problems relating to maintenance of condenser water boxes.

D. Safety Practices and Procedures.

1. STP Nuclear shall adhere to the Condenser Water Box Online Isolation and Restoration Procedure provided to OSHA with the Variance application while performing cleaning or maintenance activities within condenser water boxes, in accordance with STP Nuclear's permit-required confined space program.
2. STP Nuclear shall implement the hazard prevention and control requirements identified in the Variance application (use of stop pins) to isolate condenser water boxes before performing maintenance activities within condenser water boxes.
3. STP Nuclear shall close the cycle inlet and butterfly valves with a local handswitch.
4. STP Nuclear shall remove power from the inlet and isolation valve and hang Danger Tags on the local handswitch and the breaker.
5. STP Nuclear shall drain the condenser water box to another condenser water box using the permanently installed condenser drain down pumps.
6. STP Nuclear shall check for leakages past the isolation valve seat. In the event that a leak is found, STP Nuclear will use a handwheel to manually achieve proper disk seating and ensure that a Danger Tag is hung on the handwheel.
7. STP Nuclear shall establish and implement a procedure to ensure that no other maintenance will be performed on the condenser water box, unless permit-required confined space measures are used.
8. STP Nuclear shall modify each of the 12 condenser water box isolation valves to drill four holes into the 99.75 inch diameter upper valve range, which will be plugged when the condenser water box is in service and fabricate 20 three-fourth inch diameter stop pins, which will be installed to block movement of the butterfly valve disk and hang Danger Tags on the pins.

9. STP Nuclear shall confirm that lineup changes (i.e., pump switching, valve position changes) within the CWS are prohibited while personnel are within the water box.
10. STP Nuclear shall limit the number of personnel occupying the isolated water box to no more than 3 people in the inlet or outlet and no more than 4 people in total during condenser water box maintenance activities.
11. STP shall utilize technology-based level measurement instruments with local audible alarms to alert the personnel working in the isolated water box of a rising water level in the CWS piping beneath the water box. The instrument serves as a secondary means of monitoring the water level, in addition to the manual level monitoring via Tygon tubing.
12. STP Nuclear shall utilize hydraulic calculations to analyze the potential leak paths into an isolated water box and quantify the inflow rates and durations to fill the water box. This will identify how much time personnel have to evacuate the water box in the event of a water leak into the isolated water box.
13. STP Nuclear will utilize a physical lock on the 6 inch cross-tie valve (or replace the valve with a design that allows physical locking) to prevent any unauthorized operation of the valve during the condenser water box maintenance activity.
14. STP Nuclear shall monitor the water levels in the supply side water box (and return water box) regardless of when personnel are present. Continuous monitoring for water leakage on the supply and return water box of an isolated segment of the system is required as water leakage from either side could present a hazard to personnel even if they are not in the water box where the leakage is occurring.
15. STP Nuclear shall require the presence of a dedicated water box drain pump operator while personnel are occupying the isolated water box.

16. STP Nuclear shall utilize the water box low-point drains (6 inch for Unit 1 and 8 inch for Unit 2) to provide secondary means of evacuating water leakage from the isolated water box connected CWS piping.
17. STP Nuclear shall install a level indicator that will alarm to alert the employee in the water box to evacuate because of rising water levels and auto start the two drain pumps. This level indicator alarm is in addition to the portable system being used in monitoring the levels.
18. STP Nuclear shall ensure that rescue team members be present at the condenser water box throughout the duration of the maintenance activities.

E. Communication

STP Nuclear must:

1. Implement a system that informs workers performing maintenance activities within condenser water boxes of any hazardous occurrences or conditions that might affect their safety.
2. Provide a means of communication among affected workers and support personnel in energy isolation where unassisted voice communication is inadequate.
 - (a) Use an independent power supply for powered communication systems, and these systems must operate such that use or disruption of any one phone or signal location will not disrupt the operation of the system from any other location.
 - (b) Test communication systems at the start of each shift and as necessary thereafter to ensure proper operation.

F. Worker Qualifications and Training

STP Nuclear will implement an effective permit-required confined space isolation qualification and training program for authorized employees involved in performing

maintenance activities within condenser water boxes. All training must be provided in a language that the employees can understand. STP Nuclear must:

1. Utilize the permit-required confined space isolation training program submitted to OSHA as part of this Variance application, and train each authorized employee on the isolation process for condenser water boxes, and the procedures required under it;
2. Develop a training program and train each affected employee in the purpose and use of the alternative permit-required confined space isolation procedures used for maintenance of condenser water boxes under this interim order and document this instruction;
3. Ensure that workers performing maintenance activities within condenser water boxes know how to enter, work in, and exit from a condenser water box under both normal and emergency conditions;
4. Ensure that each authorized and affected employee has effective and documented training in the contents and conditions covered by this permanent variance and interim order; and
5. Ensure that only trained and authorized employees perform permit-required confined space isolation procedures for the task of performing maintenance of condenser water boxes at the STP Nuclear site.

G. Inspections, Tests, and Accident Prevention

STP Nuclear must implement the detailed program for completing inspections, tests, program evaluations, and incident prevention for the isolation of condenser water boxes for maintenance purposes in accordance with its permit-required confined space procedure submitted to OSHA as part of STP Nuclear's Variance application. STP Nuclear must:

1. Ensure that a competent person (authorized employee) conducts daily visual checks and monthly inspections and functionality tests of condenser water boxes and permit-required confined space isolation procedures that ensure the procedure and conditions of this permanent variance and interim order are being followed.
2. Ensure that a competent person conducts daily inspections of the work areas associated with the maintenance of the condenser water boxes.
3. Develop a set of checklists to be used by a competent person in conducting daily inspections of the condenser water boxes and permit-required confined space procedures used while performing maintenance activities at condenser water boxes at the STP Nuclear facility.
4. STP Nuclear will remove from service any equipment that constitutes a safety hazard until STP Nuclear corrects the hazardous condition and has a qualified person approve the correction.
5. STP will maintain records of all maintenance activities of the condenser water box, as well as associated corrective actions and repairs, at the job site for the duration of the variance. Where available, the maintenance, servicing, and installation of replacement parts must strictly follow the manufacturer's specifications, instructions, and limitations.

H. Additional Recordkeeping Requirement

STP Nuclear must maintain a record of any recordable injury, illness, or fatality (as defined by 29 CFR 1904) resulting from the task of cleaning and performing maintenance activities within the condenser water box by completing OSHA Form 301, Injury and Illness Incident Report, and OSHA Form 300, Log of Work-Related Injuries and Illnesses. In addition, STP Nuclear must maintain records of all maintenance activities performed at condenser water boxes at the STP Nuclear site, as well as associated hazardous condition corrective actions and repairs.

I. Notifications

To assist OSHA in administering the conditions specified herein, STP Nuclear must:

1. Notify OSHA's Office of Technical Programs and Coordination Activities (OTPCA) and the Corpus Christi, Texas Area Office of any recordable injury, illness, in-patient hospitalization, amputation, loss of an eye, or fatality (by submitting the completed OSHA Form 301, Injury and Illness Incident Report) resulting from implementing the alternative isolation procedures of this permanent variance conditions while completing the tasks of cleaning and/or maintenance of the condenser water box, in accordance with 29 CFR 1904. STP Nuclear shall provide the notification within 8 hours of the incident or 8 hours after becoming aware of a recordable injury, illness, or fatality; and a copy of the incident investigation (OSHA Form 301, Injury and Illness Incident Report) must be submitted to OSHA within 24 hours of the incident or 24 hours after becoming aware of a recordable injury, illness, or fatality.
2. Provide OTPCA and the Corpus Christi, Texas Area Office a copy of the incident investigation report (using OSHA Form 301, Injury and Illness Incident Report) of these events within 24 hours of the incident;
3. Include on the OSHA Form 301, Injury and Illness Incident Report, information on the conditions associated with the recordable injury or illness, the root-cause determination, and the preventive and corrective actions identified and implemented.
4. Provide certification to OTPCA and the Corpus Christi, Texas Area Office within 15 working days of any engulfment incident that STP Nuclear has informed affected workers of the incident and the results of the incident investigation (including the root-cause determination and preventive and corrective actions identified and implemented).

5. Notify OTPCA and the Corpus Christi, Texas Area Office at least 15 working days in advance, should STP Nuclear need to revise the permit-required confined space isolation procedures related to condenser water box cleaning or maintenance affecting its ability to comply with the conditions of this permanent variance.
6. Provide OTPCA and the Corpus Christi, Texas Area Office, by January 31 of each calendar year, with a report covering the previous calendar year, identifying the maintenance activities performed on the condenser water boxes and evaluating the effectiveness of the alternate permit-required confined space isolation procedures set forth in the conditions of the permanent variance.
7. Inform OTPCA and the Corpus Christi, Texas Area Office as soon as possible, but no later than 7 days, after it has knowledge that it will:
 - (i) Cease doing business; or
 - (ii) Transfer the operations specified herein to a successor company.
6. Notify all affected employees of this permanent variance by the same means required to inform them of the application for a variance.

Authority and Signature

James S. Frederick, Acting Assistant Secretary of Labor for Occupational Safety and Health, Washington, DC 20210, authorized the preparation of this notice. Accordingly, the agency is issuing this notice pursuant to 29 U.S.C. 657(g)(2)), Secretary of Labor's Order No. 8-2020 (85 FR 58393, Sept. 18, 2020), and 29 CFR 1910.7.

Signed at Washington, DC, on April 22, 2021.

James S. Frederick,
Acting Assistant Secretary of Labor for Occupational Safety and Health.

